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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,512	09/28/2000	Richard Thomas Aiken	5-11	2116

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EXAMINER

NGUYEN, DAVID Q

ART UNIT	PAPER NUMBER
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2681

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/672,512

Applicant(s)

AIKEN ET AL.

Examiner

David Q. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-16 and 18-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-16 and 18-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

In view of the appeal brief filed on 05/06/05, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Response to Arguments

1. Applicant's arguments, see Appeal Brief, filed 05/06/05, with respect to claims 1-7,9-16,18-30 have been fully considered and are persuasive. The final rejection of claims 1-7,9-16,18-30 has been withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 1-5,6-7,9-14,15-16,18-20, 22-24 and 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy (EP0926916A2) in view of Fukagawa et al. (US 6188913 B1).

Regarding claims 1,10 and 18, Roy discloses a system, a transmitter and method for generating a composite electromagnetic (EM) field to carry a signal to at least two terminals by directing energy in a plurality of directions (see fig. 4,6,and 8), the amount of energy directed in the direction of each of the terminals being a function of the locations and acceptable receive strengths of at least two of the terminals (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1). Roy. does not disclose wherein the direction is an azimuth direction. However, Fukagawa et al. discloses the direction is an azimuth direction (see col. 22, lines 25-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Fukagawa et al. to Roy in order to apply to a monopole antenna which does not produce significant radiation in the elevation direction.

Regarding claims 2, 11 and 19, the transmitter, system and method of Roy in view of Fukagawa et al. also discloses wherein the function is such that a strength of the EM field at the location of any of the at least two terminals is at least as large as, but not significantly larger than, needed for that terminal to receive the signal carried by the EM field with an acceptable level of signal quality (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy).

Regarding claims 3, 12 and 20, the transmitter, system and method of Roy in view of Fukagawa et al. also comprises the step of: determine for each on of the terminals an EM field that would have to be generated for the one terminal in order to provide an acceptable receive strength thereat, the determining taking into account the strength, at the location of the one

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terminal, of EM fields previously determined for others of the terminals (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy); repeat the first determining until the EM fields determined for the at least two of the terminals provide an EM field strength for each of the at least two of the terminals that is substantially equal to its adequate receive strength (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy); determine the amount of energy to be directed in the direction of each of the terminals based on the EM fields thus determined (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy).

Regarding claims 4, 13 and 23, the transmitter, system and method of Roy in view of Fukagawa et al. also includes: each EM field being represented by on of a plurality of beam patterns (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy); the first determining comprises determining for each one of the terminals a beam pattern that would have to be generated for the one terminal in order to provide an acceptable receive signal strength thereat, the determining taking into account the EM field strength, at the location of the one terminal, of beam-patterns previously determined for others of the terminals (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy); and the repeating comprises repeating the first determining until the beam-patterns determined for the at least two of the terminals provide an EM field strength for each of the at least two of the terminals that is substantially equal to its adequate receive signal strength (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy).

Regarding claims 6,15 and 25, the transmitter, system and method of Roy in view of Fukagawa et al. also discloses wherein one of a plurality of weight vectors corresponds to each

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of the beam-patterns (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy), and the second determining step comprises the steps of determining a composite weight vector using the plurality of weight vectors, and a null-filling factor (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy); determining a composite beam-pattern using the composite weight vector, the composite beam-pattern representing the composite EM field (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy); and determining the amount of energy to be directed in the direction of each of the terminals based on the composite EM field (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy).

Regarding claims 7, 16 and 26, the transmitter, system and method of Roy in view of Fukagawa et al. also discloses a processor operable to:

determining for each one of the terminals an EM field that would have to be generated for the one terminal in order to provide an acceptable receive strength thereat if that one terminal was the only terminal that needed to receive the signal (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy); determine a scaling factor for each EM field such that each EM field, associated with the at least two terminals, scaled by its scaling factor provides an EM field strength at the location of each of these at least two terminals that is substantially equal to its adequate receive strength (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy); scale each EM field, associated with the at least two terminals, by its scaling factor (see pars. 32-33; pars.52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 Roy); and determine the amount of energy to be directed in the direction of each

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of the terminals based on the EM fields thus determined (see pars. 32-33; pars. 52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy).

Regarding claims 9, 27 and 28, the transmitter, system and method of Roy in view of Fukagawa et al. also discloses transmitting the signal/energy to the terminals via a phased array antenna (see pars. 32-33; pars. 52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy).

Regarding claims 22 and 29-30, the system of Roy in view of Fukagawa et al. also discloses the system is a wireless communication system comprising a base station and terminals being mobile terminals (see pars. 32-33; pars. 52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1 of Roy):

Regarding claims 5, 14 and 24, the transmitter, system and method of Roy in view of Fukagawa et al. does not mention the beam-patterns being voltage beam patterns; the acceptable receive strength being an acceptable received voltage; and the adequate receive strength being an adequate receive voltage (see pars. 32-33; pars. 52-54; pars. 61-63; par. 72-76; pars. 116-124 and claim 1).

3. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roy (US 5615409) in view of Fukagawa et al. (US 6188913 B1) and further in view of Wong et al, (U.S. 6,330,460).

Regarding claim 21, the transmitter, system and method of Roy in view of Fukagawa et al. does not mention the processor is located in the transmitter. However, in Wong as modified above, the processor is located in the transmitter. See Wong, Fig. 2. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Wong to the transmitter, system and method of Roy in view of Fukagawa et al.

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in order to form the antenna in the direction of each of the terminals automatically and accurately.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Q. Nguyen whose telephone number is 571-272-7844. The examiner can normally be reached on 8:30AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOSEPH H. FEILD can be reached on (571)272-4090. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DN

David Nguyen


JOSEPH FEILD
SUPERVISORY PATENT EXAMINER